

5.0 IMPLEMENTATION PLAN

The Implementation Plan for the Airport's Noise Compatibility Program (NCP) specifies each measure that should be implemented over the course of the program and designates the parties responsible for implementing each measure. The estimated costs, anticipated funding sources, and schedule for implementing these measures are also identified.

The Implementation Plan summarizes the actions necessary to implement the operational, remedial, and land use management strategies that are recommended in the preceding chapters. The Noise Abatement Program is also presented and focuses on administrative actions for monitoring the implementation and effectiveness of the NCP's recommendations. The Implementation Plan culminates with a schedule for undertaking the actions recommended in the NCP.

5.1 IMPLEMENTATION OF OPERATIONAL STRATEGY RECOMMENDATIONS

Chapter 2.0, (Volume II) *Recommended Operational Strategies*, evaluated strategies for minimizing aircraft noise impacts on sensitive uses in the Airport's environs and identifies the most appropriate and effective operational measures. The added operational, land use, management and administrative measures that are recommended can further enhance the effectiveness of the Airport Noise Abatement Program and these include:

Operational Procedures

1. Pilot Training Traffic Pattern (touch and go)
2. Arrival/Departure Patterns
3. Lunken Airport ATCT Letter Agreement With CVG ATCT
4. Lead-in-Lighting Systems

Land Use Preventative Strategies (including areas outside 65 DNL)

5. Lunken Airport Comprehensive Land Use Plan
6. Lunken Airport Overlay Zoning
7. Lunken Airport Development Zoning
8. Coordination Agreements

Management/Administrative Recommendations

9. Pilot Communication
10. Community Awareness Programs
11. Approach Plate Modification
12. Noise Abatement Officer
13. AirScene Tracking System
14. Aircraft Engine Maintenance/Run-up Pads with Blast Deflectors
15. Blast Deflector Fences

Airport Alterations

16. Signage

5.1.1 Pilot Training Traffic Pattern

Runway 21R pilot training traffic pattern includes flying a runway heading when speed and altitude permit to pattern altitude of 1500 feet MSL. Turn west on the crosswind and follow the south shore of the Ohio River maintaining a traffic pattern altitude of 1,500 MSL or above. Turn north and fly a downwind heading along Delta Avenue. The base leg turns east along Linwood Avenue and uses the Horse Barn as a fix to turn south on final for landing on Runway 21R

The Runway 3L pilot training traffic pattern includes flying a runway heading north (when speed and altitude permit) to pattern altitude of 1500 feet MSL. Turn west on the crosswind leg over the Horse Barn and follow Linwood Avenue. Turn south and fly a downwind leg along Delta Avenue, then turn east on the base leg following the south shore of the Ohio River. Turn north on final for landing on Runway 3L.

The Airport sponsors are required to notify all flight training schools and flight training instructors of the modified Pilot Training Traffic Pattern. Please refer to **Table 5.1-1** which summarizes the advantages, associated implementation, safety issues, feasibility issues, and affordability issues/cost of recommended strategies.

5.1.2 Arrival/Departure Patterns

The implementation of Runway 21L east arrival/Runway 3R east departure corridors and Runway 21L west arrival/Runway 3R west departure flight corridor would place aircraft flight tracks over major ground transportation corridors rather than over residential areas. The arrival patterns also draw the flight tracks one half mile closer for piston powered aircraft and 2 miles for turbine powered aircraft to the runway and thereby further away from the affected neighborhoods. On departure, both piston and turbine powered aircraft will fly to a point one and a half miles on the extended centerline off Runway 21L. The City of Cincinnati and the Airport will ensure that these arrival/departure flight procedures are communicated to all the Airport users. This can be done by placing these noise abatement flight procedures on the Airport IFR approach plates. Additionally, seminars can be conducted by the Airport or the City, brochures developed and mailed to interested parties or published on the Airport's internet website or public awareness mediums.

5.1.3 Lead-in-Lighting System

The Lead-in-Lighting system augments a number of the operational strategies discussed above. Nighttime arrival operations are aided by visual fixes that help guide aircraft in following noise abatement routes. Installing Lead-in-Lighting System for east and west approaches to Runway 21L will assist aircraft in approaching the primary Runway 21L. Preliminary investigation of installing this lead-in-lighting system at the Airport is projected to cost \$525,000.00.

<p>TABLE 5.1-1 Cincinnati Municipal-Lunken Airport IMPLEMENTATION SUMMARY OF RECOMMENDED STRATEGIES</p>								
Alternative	Description of Alternative	Who Implements Alternative?	Associated Advantages	Associated Disadvantages	Further Evaluation Needed	Safety Issues	Feasibility Issues	Affordability Issues/Cost
Operational								
Runway 21R Pilot Training Traffic Pattern	Fly Runway heading to pattern altitude of 1,500 MSL, turn west on the crosswind leg and follow the south shore of the Ohio River. Turn north and fly a downwind heading along Delta Avenue. Turn east on base leg along Linwood Avenue and use the Horse Barn as a fix to turn south on final for landing on Runway 21R.	FAA, City	Reduce noise impacts on Columbia Tusculum, Mount Lookout and Hyde Park residential areas and Ft. Thomas and Highland Heights in Kentucky	Limited residential areas exposed to noise.		No	No	To be determined
Runway 3L Pilot Training Traffic Pattern	Fly Runway heading north to pattern altitude of 1,500 MSL, turn west on the crosswind leg over the Horse Barn and follow Linwood Avenue. Turn south and fly a downwind leg along Delta Avenue, then turn east on base leg following the south shore of the Ohio River.	FAA, City	Reduce noise impacts on Columbia Tusculum, Mount Lookout and Hyde Park residential areas and Ft. Thomas and Highland Heights in Kentucky	Limited residential areas exposed to noise.		No	No	To be determined
Runway 21L East arrival flight track	Fly visual arrival corridor for all piston engine aircraft south of Mariemont along the center of the Little Miami River Valley to a point 1.5 miles on the extended centerline of Runway 21L and to a point 2 miles on the extended centerline of Runway 21L for turbine powered aircraft.	FAA, City	Reduces overflights in the Village of Mariemont and Fairfax	Education of pilots of new routes much occur		No	No	No
Runway 3R East departure flight track	Fly visual departure corridor for all piston and turbine powered engine aircraft to a point 1.5 miles on the extended centerline of Runway 21L. Then turn east along the center of the Little Miami River Valley.	FAA, City	Reduces overflights in the Village of Mariemont and Fairfax	Education of pilots of new routes much occur		No	No	No

TABLE 5.1-1 (continued)								
Cincinnati Municipal-Lunken Airport								
IMPLEMENTATION SUMMARY OF RECOMMENDED STRATEGIES								
Alternative	Description of Alternative	Who Implements Alternative?	Associated Advantages	Disadvantages	Further Evaluation Needed	Safety Issues	Feasibility Issues	Affordability Issues/Cost
Runway 21L West arrival flight track	Fly visual arrival corridor along the Norwood Lateral (US-562) then to the Red Bank Expressway to a point 1.5 miles for piston powered aircraft and 2 miles turbine powered aircraft on the extended centerline of Runway 21L.	FAA, City	Reduces overflights in Madisonville, Oakley, the Village of Mariemont, Fairfax, Mount Lookout, and Hyde Park	Education of pilots, Controllers, and users	N/A	No	No	Potential
Runway 3R West departure flight track	Fly visual departure corridor for all piston and turbine powered aircraft to a point 1.5 miles off the extended centerline of Runway 21L. Then follow the Red Bank Expressway to the Norwood Lateral (US-562).	FAA, City, Community	Reduces overflights in Madisonville, Oakley, the Village of Mariemont, Fairfax, Mount Lookout, and Hyde Park	Education of pilots, Controllers, and users	N/A	No	No	Potential
Lunken Airport ATCT Letter Agreement with CVG ATCT	Lunken Approach Control shall between the hours of 10:00 p.m. and 7:00 a.m. daily. Assign an IFR aircraft departure heading which corresponds to the departure runway used: Eg: Departing Runway 21L assign heading of 210 degrees; departing Runway 3R assign heading of 030 degrees. (Pilot must then await CVG ATCT instruction).	FAA, City, Community	Reduces overflights to Mt. Washington, East End and California	Increases overflights around I-275 and Ohio River	N/A	No	No	Potential
Management/Administrative								
Pilot Communication	Communicate the revised noise mitigation programs to pilots	City, Users	Inexpensive involves education and reminders	N/A	N/A	No	No	No
Signage	Install signage alerting pilots to revised noise mitigation procedures	FAA, City	Inexpensive involves education and reminders	N/A	N/A	No	No	Depending on funding availability
Runway 3R/21L Lead-in-Lights	Install Lead-In-Lighting System for east and west approaches to Runway 3R/21L.	City	Enhances pilots ability to follow noise mitigation flight tract	Cost of procurement, installation, and ongoing maintenance	Detailed cost estimate will be prepared	No	No	Yes

<p>TABLE 5.1-1 (continued)</p> <p>Cincinnati Municipal-Lunken Airport</p> <p>IMPLEMENTATION SUMMARY OF RECOMMENDED STRATEGIES</p>								
Alternative	Description of Alternative	Who Implements Alternative?	Associated Advantages	Associated Disadvantages	Further Evaluation Needed	Safety Issues	Feasibility Issues	Affordability Issues/Cost
Aircraft Maintenance/ Run up pads	Construct engine run-up pad adjacent to Taxiway C, and relocate existing pad	FAA, City	Reduces noise, reduce the number of runway crossings	Cost	Needs to be estimated	No	No	Depending on funding availability
Blast Deflectors	Construct/Install blast deflectors at run-up pads	FAA, City	Reduces run-up noise	Cost	Needs to be estimated	No	No	Depending on funding availability
Approach Plate Modification	Place noise mitigation advisories on Lunken Airport approach plans	FAA, City	Increase pilots awareness of noise mitigation procedures	N/A		No	No	Minimal cost
AirScene Tracking System	Purchase and install AirScene Tracking System	City	Gain more information					
Employ Noise Abatement Officer		City	Improved communication with the Community	N/A	N/A	N/A	N/A	
<p>Land Use (Preventative) Strategies: While there are no existing residential units within the 65 DNL noise contour, the benefits of these land use strategies are mentioned as a future step to reduce in the future if further encroachment by residential development or other noise-sensitive land uses occurs.</p>								
Lunken Airport Comprehensive Land Use Plan	Implement Land Use Controls and Construction Standards in local communities	City, Communities	Reduce noise			N/A	Dependent on community receptiveness	Dependent on community receptiveness
Airport Overlay Zoning	Implement Land Use Controls and Construction Standards in local communities	City, Communities	Reduce noise			N/A	Dependent on community receptiveness	Dependent on community receptiveness
Airport Development Zoning	Implement Land Use Controls and Construction Standards in local communities	City, Communities	Reduce noise			N/A	Dependent on community receptiveness	Dependent on community receptiveness
Coordination Agreements	Implement Land Use Controls and Construction Standards in local communities	City, Communities	Reduce noise			N/A	Dependent on community receptiveness	Dependent on community receptiveness

Source: PB Aviation

The recommended operational strategies are summarized in **Table 5.1-2**. The relative contribution of each measure is noted, along with associated actions, cost, implementation timing, and responsibilities for implementation.

The recommended operational strategies are intended to be applied during normal the Airport operations. These procedures may not be implemented during certain periods of airfield operations, such as runway maintenance, construction, severe weather or other unexpected or unusual circumstances. Additionally, these procedures would not be utilized when safety (e.g., during a missed approach) or capacity issues are a concern.

Implementation of the operational strategies requires the continued cooperation of the FAA, the Airport ATCT personnel, and the airport users. Additional actions associated with implementation of the operational strategies are discussed below.

TABLE 5.1-2 Cincinnati Municipal-Lunken Airport RECOMMENDED OPERATIONAL STRATEGIES				
Strategy	Further Evaluation Needed	Cost	Timing	Responsibility
Runway 3L/21R Pilot Training Traffic Pattern	No	N/A	1 year	City
Runway 21L east arrival/Runway 3R east departure flight track	No	N/A	1 year	City/FAA
Runway 21L west arrival/Runway 3R west departure flight track	No	N/A	1 year	City/FAA
Lunken Airport ATCT Letter Agreement With CVG ATCT	No	N/A	2 years	City/Lunken ATCT/FAA/CVG ATCT
Runway 3R/21L Lead-in- lights	Detailed cost estimate will be prepared	\$525,000	3 years	City/FAA

Source: PB Aviation

5.2 IMPLEMENTATION OF REMEDIAL AND PREVENTATIVE LAND USE RECOMMENDATIONS

The land use management strategies evaluated in Chapter 3.0 *Recommended Land Use Strategies* (Volume II) have been discussed with the PAC representatives of the local jurisdictions. Land use management is very important given the FAA's recent policy to make new incompatible development that occurs after October 1998 within the DNL 65 dBA noise

contour ineligible for funding. These recommended strategies should be implemented by the appropriate local jurisdictions as they plan for development/redevelopment and administer land use controls in their communities. For the most part however, the major benefit of the land use recommendation is the goal of developing a “partner” relationship between the City and surrounding areas.

Table 5.2-1 identifies specific actions, cost, timing, and responsibilities for implementation. Actions associated with the implementation of the remedial strategies are discussed below.

TABLE 5.2-1 Cincinnati Municipal-Lunken Airport RECOMMENDED LAND USE PREVENTATIVE STRATEGIES				
Strategy	Further Evaluation Needed	Cost	Timing	Responsibility
Lunken Airport Comprehensive Land Use Plan	Recommended as a managerial tool to control land use conflicts	N/A	3 years	City/FAA
Airport Overlay Zoning	Recommended as a managerial tool to control land use conflicts	N/A	4 years	City/FAA
Airport Development Zoning	Recommended as a managerial tool to control land use conflicts	N/A	6 years	City/FAA
Coordination Agreements	Recommended as a managerial tool to control land use conflicts	N/A	2 years	City/FAA

Source: PB Aviation

5.2.1 Lunken Airport Comprehensive Land Use Plan

Throughout this FAR Part 150 Study, concern has been expressed for the need to coordinate zoning updates and land use plans of surrounding communities ensuring that buffers are maintained between the airport and surrounding residential communities. Some of this buffered land can be developed for aviation related purposes while other parcels are more suited for non-aviation but compatible uses. It is important for the City of Cincinnati to develop an overall land use management strategy that develops the Airport property with compatible land uses both for the Airport and surrounding communities. It is recommended that the Airport prepare an airport land use plan to

identify and designate land uses that would stimulate compatible development around the Airport.

5.2.2 Airport Overlay Zoning

In addition to the recommended land use plan for the Airport, it is recommended that the City of Cincinnati establish an Airport Overlay Zone. The Overlay Zone will place additional zoning restrictions over the existing base of zoning classification (which is presently designated as M-1 and M-2-3, light to heavy manufacturing) thereby immediately protecting these areas for only airport compatible uses.

5.2.3 Airport Development Zoning

The Airport development zoning is the third step necessary to identify airport surroundings for airport related uses. The Airport development zone, now becomes the base zoning district that identifies the outright and conditionally permitted uses on the surrounding airport property. This zone, once designated, will replace the traditional zoning classifications of M-1-2-3, light to heavy manufacturing district. The City of Cincinnati, the Airport, the communities, and the FAA must be involved in developing a the Airport development zoning district.

5.2.4 Coordination Agreements

Coordination agreements will be required to establish cooperation among affected jurisdictions and identify the parties responsible for developing, implementing and monitoring noise abatement strategies for the impacted areas. The City of Cincinnati and the Airport should work with surrounding jurisdictional communities to develop coordination agreements.

5.3 IMPLEMENTATION OF MANAGEMENT/ADMINISTRATIVE RECOMMENDATIONS

5.3.1 Pilot Communication

Gaining pilot awareness of noise abatement procedures and the surrounding communities' concerns will be the responsibility of the Airport and the City of Cincinnati. Effectively communicating these modified noise abatement procedures to pilots will significantly increase a pilot's knowledge of the airport's Noise Abatement Program. The Airport should also develop programs such as seminars, published brochures, pamphlets, posters, meetings, and articles to make the users aware of established noise abatement procedures. Refer to **Table 5.3-1**.

TABLE 5.3-1 Cincinnati Municipal-Lunken Airport RECOMMENDED MANAGEMENT/ADMINISTRATIVE STRATEGIES				
Strategy	Further Evaluation Needed	Cost	Timing	Responsibility
Pilot Communication	No	N/A	1 year	City/FAA
Community Awareness Programs	No	N/A	Ongoing	City/Airport
Approach Plate Modification	No	N/A	2 years	City/Airport/FAA
Employ Noise Abatement Officer	No	N/A	1 year	FAA/City
AirScene Tracking System	Yes	400,000	2 years	FAA/City

Source: PB Aviation

5.3.2 Community Awareness Programs

Educating the public is important to developing a Noise Compatibility Program. Community awareness programs inform the public and specifically the surrounding communities on Noise Compatibility Program. This awareness and the tangible programs of the Airport will improve cooperation with these important stakeholders. The City of Cincinnati and the Airport should endeavor to develop and continue community awareness programs regularly, (quarterly, semiannually or annually) in order to identify community complaints and to inform the surrounding community of the ongoing strategies developed to reduce noise.

5.3.3 Approach Plate Modification

The recommendation to place the recommended operational strategies of Pilot Training Program and modified Arrival/Departure procedures on the Airport IFR Approach Plates, further enhance, the adherence to perform noise abatement procedures.

This action would mitigate aircraft arrival/departure turns over residential neighborhoods. It would also inform pilots of the modified arrival departure routes. The City of Cincinnati, the Airport, the Airport ATCT and FAA CVG ATCT should develop and coordinate the modification of the Airport's IFR Approach Plates.

5.3.4 Employ Noise Abatement Officer

The Airport has already added to their Airport staff a noise abatement officer. This employment enhances the overall effectiveness of the Noise Abatement Program via oversight and continued monitoring of noise strategies, qualified responses to complaints both verbally and in writing and also to represent the Airport in noise matters at the Airport and community meetings. Other than being responsible for keeping detailed records of aircraft noise and monitoring operational procedures, this office will also manage the implementation of remedial and land use management programs as well as disseminating information to the Airport staff and the community on the Noise Compatibility Program.

5.3.5 AirScene Tracking System

The AirScene Flight Tracking System, when implemented at the Airport will be a monitoring tool in assisting the noise abatement officer on aircraft activity. Noise complaints will more accurately be identified and the appropriate actions taken. Therefore, time and accuracy in responding to community complaints will improve. The cost of implementing this tracking system along with BridgeNet International Flight Track Display software which enables internet web-accessible applications is approximately \$400,000.

5.4 Alterations to the Airport Facilities

5.4.1 Signage

Constructing signs on the airfield near runways and taxiways depicting noise abatement procedures adds to the communication strategies the Airport and the City of Cincinnati can employ in alerting airport users, namely pilots to these procedures. Signs depicting departure routes for respective runways remind pilots that:

1. There is a noise abatement departure procedure for this runway; and
2. The residential communities around the airport must be taken into consideration when operating aircraft in the Airport community.

As noted in Chapter 4.0 (Volume II), these signs must be in accordance with FAA guidelines related to the placement and erection of signs on airports.

5.4.2 Aircraft Engine Maintenance/Run-up Pads

The construction of a run-up pad with a blast fence south on Taxiway D east of Runway 25 would assist in splitting aircraft engine run-ups on the Airport airfield area. Constructing a second run-up pad north of Taxiway C west of Runway 3L would share in the performance of aircraft maintenance for the users located south of Taxiway C. The recent Cincinnati Municipal Lunken Airport Master Plan Update shows the relocation of Taxiway C further north towards the midfield area. The run-up pad and blast deflector fence is recommended to be relocated to the future Taxiway C.

The run-up pads will add to the safety and efficiency of aircraft taxiing by preventing taxiway incursions. For example aircraft taxiing on Taxiway C for departure can taxi to the run-up pad area and hold as arriving aircraft to clear Taxiway C. Constructing the run-up pad on Taxiway C enables the departing aircraft to taxi on Taxiway C and use the run-up pad as a by-pass area until the arriving aircraft passes.

5.0 IMPLEMENTATION PLAN

Preliminary cost estimate for the construction of a run-up pad and blast deflector fence is approximately \$370,000. Refer to **Table 5.4-1** for a summary of recommended alterations to airport facilities.

TABLE 5.4-1 Cincinnati Municipal-Lunken Airport RECOMMENDED ALTERATIONS TO AIRPORT FACILITIES				
Strategy	Further Evaluation Needed	Cost	Timing	Responsibility
Signage	Review FAA signage standards	\$ 15,000	1 year	City/FAA
Run-up Pad and Blast Deflector Fence	Review FAA standards	\$370,000	5 years	City/FAA

Source: PB Aviation

5.5 NOISE ABATEMENT PROGRAM

A Noise Abatement Program is necessary in order to continue monitoring the effectiveness of the recommended operational and remedial strategies and to improve community coordination and communication. It is recommended that the noise abatement program be continued and enhanced as funds become available.

5.6 PROGRAM COST

The estimated program costs summarized in **Table 5.6-1**, are projected to be approximately \$1.3 million. Additional administrative costs are anticipated to be incurred by the City, FAA, and local jurisdictions.

The majority of funds are expected to come from federal or City sources. Local government participation would principally cover administrative costs for preparing and distributing materials that support the noise awareness and community outreach efforts. Also, local governments should participate in the community outreach aspects of the program. For example, informational brochures and articles developed by the Airport management could be included in community newsletters.

TABLE 5.6-1

*Cincinnati Municipal-Lunken Airport***SUMMARY OF PROGRAM COSTS**

Items Selected	Approximate Cost	Funding Sources
AirScene Tracking System	\$400,000	City/FAA
Runway 3R/21L Lead-in-Lights	\$525,000	City/FAA
Signage	\$ 15,000	City/FAA
Run-up Pad and blast deflector fence	\$370,000	City/FAA
Total Estimated Cost	\$1,310,000	

Sources: PB Aviation

5.7 PHASING

Because of the dependence upon federal funding sources, it is difficult to specify the time frame for implementing the program. Moreover, review and approval periods associated with this Part 150 Study obscure the certainty of program scheduling. The FAA has 180 days to review and approve/disapprove the measures that are recommended in the program, once the FAA accepts the study documentation. In this instance, the Noise Exposure Maps (Volume I) and Noise Compatibility Program (Volume II) will be submitted concurrently to the FAA.

The proposed phasing for implementing the NCP's recommendations is shown in **Table 5.7-1**. Enhancement of the Noise Abatement Office should begin at the earliest practical date upon approval of the FAR Part 150 Study.

TABLE 5.7-1

*Cincinnati Municipal-Lunken Airport***NCP RECOMMENDATIONS AND PROPOSED PHASING**

Strategy	Further Evaluation Needed	Cost	Timing	Responsibility
Runway 3L/21R Pilot Training Traffic Pattern	No	N/A	1 year	City
Runway 21L east arrival/Runway 3R east departure flight track	No	N/A	1 year	City/FAA
Runway 21L west arrival/Runway 3R west departure flight track	No	N/A	1 year	City/FAA
Lunken Airport ATCT Letter Agreement with CVG ATCT	No	N/A	1 year	FAA/City
Lunken Airport Comprehensive Land Use Plan	Yes	N/A	3 years	City/FAA
Airport Overlay Zoning	Yes	N/A	4 years	City/FAA
Airport Development Zoning	Yes	N/A	6 years	City/FAA
Coordination Agreements	Yes	N/A	2 years	City/FAA
Pilot Communication	No	N/A	1 year	City/FAA
Community Awareness Programs	No	N/A	Ongoing	City/Airport
Approach Plate Modification	No	N/A	2 years	FAA/City
Employ Noise Abatement	No	N/A	1 year	FAA/City
AirScene Tracking System	Yes	\$400,000	2 years	FAA/City
Signage	Review FAA signage standards	\$ 15,000	1 year	City/FAA
Run-up Pad and Blast Deflector fence	Review FAA standards	\$370,000	5 year	City/FAA
Runway 3R/21L Lead-in- Lights	Detailed cost estimate needed	\$525,000	5 years	City/FAA

Source: PB Aviation